

In the Claims:

For the convenience of the Examiner, all pending claims of the present Application are shown below whether or not an amendment has been made. Please amend the Application as follows:

1. (Currently Amended) A computer-implemented method for detecting and resolving conflicts in association with a data allocation, the method performed using a computer system comprising one or more processing units and one or more memory units, the method comprising:

determining the-a relationship between each of a plurality of positions in a hierarchical organization of data;

selecting a position  $i$ ;

determining a total weight of position  $i$ ;

if a total weight of position  $i$  is effectively non-zero, removing the-an influence of position  $i$  from the other positions in the hierarchical organization of data and adding position  $i$  to a set of conflict-free positions;

alternatively, if the total weight of position  $i$  is effectively zero:

selecting a position  $k$  with which position  $i$  has a relationship;

reintroducing the-an effect of position  $k$  on the other positions if  $k$  is already in the conflict-free set;

removing position  $k$  from the conflict-free set if  $k$  is already in the conflict-free set; and

if  $i$  is not the selected position, removing the influence of position  $i$  from the other positions and in the hierarchical organization of data adding position  $i$  to the conflict-free set; and

successively repeating the method for each position, with each successive position becoming position  $i$ , to determine the set of conflict-free positions for use in detecting and resolving conflicts in an allocation of data between a plurality of the positions in the hierarchical organization of data.

2. (Currently Amended) The method of Claim 1, wherein:  
the positions comprises parents in the hierarchical organization of data and positions  $i$  and  $j$  comprise parents  $i$  and  $j$ ; and  
determining the relationship between a plurality of positions comprises determining a parent-parent relationship matrix identifying the relationships between a plurality of parents.
3. (Original) The method of Claim 2, wherein the parent-parent relationship matrix is determined using a parent-child relationship matrix identifying the relationships between each parent and one or more children of each parent.
4. (Currently Amended) The method of Claim 3, wherein the parent-parent relationship matrix comprises the a matrix  $R\Sigma R^T$ , where  $\Sigma$  comprises a matrix of the variations of the children,  $R$  comprises the a parent-child relationship matrix, and  $R^T$  is the transpose of  $R$ .
5. (Currently Amended) The method of Claim 3, wherein the parent-parent relationship matrix comprises the a matrix  $RR^T$ , where  $R$  comprises the parent-child relationship matrix and  $R^T$  is the transpose of  $R$ .
6. (Currently Amended) The method of Claim 2, wherein determining the total weight of position  $i$  comprises identifying the a diagonal value in the parent-parent relationship matrix corresponding to parent  $i$ .
7. (Original) The method of Claim 6, wherein removing the influence of position  $i$  comprises performing a *SWEEP* operation on the diagonal value in the parent-parent matrix corresponding to parent  $i$ .
8. (Original) The method of Claim 6, wherein reintroducing the effect of position  $k$  on the other positions comprises performing an *INVSWEET* operation on the diagonal value in the parent-parent matrix corresponding to parent  $k$ .

9. (Original) The method of Claim 1, wherein selecting position  $k$  comprises:  
requesting a selection by a user of position  $k$ ; and  
receiving input from the user identifying the selected position  $k$ .

10. (Original) The method of Claim 9, wherein a selection by a user of position  $k$  is requested only if position  $i$  is included in a pre-defined set of positions for which user input is requested.

11. (Original) The method of Claim 1, wherein selecting position  $k$  comprises selecting a position having a shared weight with position  $i$  that is effectively non-zero.

12. (Original) The method of Claim 1, wherein:  
the hierarchical organization of data comprises one or more dimensions; and  
the positions are all members of the same dimension within the hierarchical organization of data.

13. (Original) The method of Claim 1, wherein:  
the hierarchical organization of data comprises multiple dimensions; and  
the positions are associated with multiple dimensions of the hierarchical organization of data.

14. (Currently Amended) A computer-implemented system for detecting and resolving conflicts in association with a data allocation, the system comprising ~~one or more software components collectively one or more processing units and one or more memory units, the system operable to:~~

determine ~~the a~~ relationship between each of a plurality of positions in a hierarchical organization of data;

select a position  $i$ ;

determine a total weight of position  $i$ ;

if the total weight of position  $i$  is effectively non-zero, remove ~~the an~~ influence of position  $i$  from the other positions in the hierarchical organization of data and add position  $i$  to a set of conflict-free positions;

alternatively, if the total weight of position  $i$  is effectively zero:

select a position  $k$  with which position  $i$  has a relationship;

reintroduce ~~the an~~ effect of position  $k$  on the other positions if  $k$  is already in the conflict-free set;

remove position  $k$  from the conflict-free set if  $k$  is already in the conflict-free set; and

if  $i$  is not the selected position, remove the influence of position  $i$  from the other positions in the hierarchical organization of data and add position  $i$  to the conflict-free set; and

successively repeat the above steps for each position, with each successive position becoming position  $i$ , to determine the set of conflict-free positions for use in detecting and resolving conflicts in an allocation of data between a plurality of the positions in the hierarchical organization of data.

15. (Currently Amended) The system of Claim 14, wherein:

the positions comprises parents in the hierarchical organization of data and positions  $i$  and  $j$  comprise parents  $i$  and  $j$ ; and

determining the relationship between a plurality of positions comprises determining a parent-parent relationship matrix identifying ~~the~~ relationships between a plurality of parents.

16. (Original) The system of Claim 15, wherein the parent-parent relationship matrix is determined using a parent-child relationship matrix identifying the relationships between each parent and one or more children of each parent.

17. (Currently Amended) The system of Claim 16, wherein the parent-parent relationship matrix comprises ~~the-a~~ matrix  $\mathbf{R}\Sigma\mathbf{R}^T$ , where  $\Sigma$  comprises a matrix of ~~the~~-variations of the children,  $\mathbf{R}$  comprises ~~the-a~~ parent-child relationship matrix, and  $\mathbf{R}^T$  is the transpose of  $\mathbf{R}$ .

18. (Currently Amended) The system of Claim 16, wherein the parent-parent relationship matrix comprises ~~the-a~~ matrix  $\mathbf{R}\mathbf{R}^T$ , where  $\mathbf{R}$  comprises the parent-child relationship matrix and  $\mathbf{R}^T$  is the transpose of  $\mathbf{R}$ .

19. (Currently Amended) The system of Claim 15, wherein determining the total weight of position  $i$  comprises identifying ~~the-a~~ diagonal value in the parent-parent relationship matrix corresponding to parent  $i$ .

20. (Original) The system of Claim 19, wherein removing the influence of position  $i$  comprises performing a *SWEET* operation on the diagonal value in the parent-parent matrix corresponding to parent  $i$ .

21. (Original) The system of Claim 19, wherein reintroducing the effect of position  $k$  on the other positions comprises performing an *INVSWEET* operation on the diagonal value in the parent-parent matrix corresponding to parent  $k$ .

22. (Original) The system of Claim 14, wherein selecting position  $k$  comprises:  
requesting a selection by a user of position  $k$ ; and  
receiving input from the user identifying the selected position  $k$ .

23. (Original) The system of Claim 22, wherein a selection by a user of position  $k$  is requested only if position  $i$  is included in a pre-defined set of positions for which user input is requested.

24. (Original) The system of Claim 14, wherein selecting position  $k$  comprises selecting a position having a shared weight with position  $i$  that is effectively non-zero.

25. (Original) The system of Claim 14, wherein:  
the hierarchical organization of data comprises one or more dimensions; and  
the positions are all members of the same dimension within the hierarchical organization  
of data.

26. (Original) The system of Claim 14, wherein:  
the hierarchical organization of data comprises multiple dimensions; and  
the positions are associated with multiple dimensions of the hierarchical organization of  
data.

27. (Currently Amended) A computer-implemented method for detecting and resolving conflicts in association with a data allocation, the method performed using a computer system comprising one or more processing units and one or more memory units, the method comprising:

determining a parent-parent relationship matrix identifying ~~the~~ relationships between a plurality of parents in a hierarchical organization of data, the parent-parent relationship matrix determined using a parent-child relationship matrix identifying ~~the~~ relationships between each parent and one or more children of each parent;

selecting a parent *i*;

determining a total weight of parent *i* by identifying ~~the a~~ diagonal value in the parent-parent relationship matrix corresponding to parent *i*;

if the total weight of parent *i* is effectively non-zero, removing ~~the an~~ influence of parent *i* from the other parents and adding parent *i* to a set of conflict-free parents;

alternatively, if the total weight of parent *i* is effectively zero:

selecting a parent *k* with which parent *i* has a relationship;

reintroducing ~~the an~~ effect of parent *k* on the other parents if *k* is already in the conflict-free set;

removing parent *k* from the conflict-free set if *k* is already in the conflict-free set; and

if *i* is not the selected position, removing the influence of parent *i* from the other parents and adding parent *i* to the conflict-free set; and

successively repeating the method for each parent, with each successive parent becoming parent *i*, to determine the set of conflict-free positions for use in detecting and resolving conflicts in an allocation of data between a plurality of the positions in the hierarchical organization of data.

28. (Currently Amended) A computer-implemented system for detecting and resolving conflicts in association with a data allocation, the system comprising ~~one or more software components collectively one or more processing units and one or more memory units, the system operable to:~~

~~determining determine~~ a parent-parent relationship matrix identifying ~~the~~ relationships between a plurality of parents in a hierarchical organization of data, the parent-parent relationship matrix determined using a parent-child relationship matrix identifying ~~the~~ relationships between each parent and one or more children of each parent;

~~selecting select~~ a parent *i*;

~~determining determine~~ a total weight of parent *i* by identifying ~~the a~~ diagonal value in the parent-parent relationship matrix corresponding to parent *i*;

if the total weight of parent *i* is effectively non-zero, ~~removing the remove an~~ influence of parent *i* from the other parents and adding parent *i* to a set of conflict-free parents;

alternatively, if the total weight of parent *i* is effectively zero:

~~selecting select~~ a parent *k* with which parent *i* has a relationship;

~~reintroducing the reintroduce an~~ effect of parent *k* on the other parents if *k* is already in the conflict-free set;

~~removing remove~~ parent *k* from the conflict-free set if *k* is already in the conflict-free set; and

if *i* is not the selected position, ~~removing remove~~ the influence of parent *i* from the other parents and adding parent *i* to the conflict-free set; and

successively ~~repeating repeat~~ the method for each parent, with each successive parent becoming parent *i*, ~~to determine the set of conflict-free positions for use in detecting and resolving conflicts in an allocation of data between a plurality of the positions in the hierarchical organization of data.~~